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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/542,133	07/12/2005	Mark Thomas Johnson	NL 030017	8899

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EXAMINER

PINKNEY, DAWAYNE

ART UNIT	PAPER NUMBER
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2873

MAIL DATE	DELIVERY MODE
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10/26/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/542,133

Applicant(s)

JOHNSON ET AL.

Examiner

DaWayne A. Pinkney

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09/06/2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 8 is/are allowed.
- 6) ☒ Claim(s) 1-4, 6, 7, 9, 12-16 and 18-21 is/are rejected.
- 7) ☒ Claim(s) 5, 10, 11 and 17 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-4, 6-7, 9, 12-16 and 18-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over De Boer et al. (US 2003/0038772).

Regarding **claim 1**, De Boer discloses, an electrophoretic display with a pixel (Paragraph 0001, lines 1-5) comprising:

a reservoir volume (Paragraph 0035, lines 7, 12-15 and 18 of Fig. 3) and an image volume (Paragraph 0035, lines 4-6 and 16 of Fig. 3),

particles having different colors and different electrophoretic mobilities (Paragraph 0011, lines 1-5, Paragraph 0014, lines 1-5 and Paragraph 0036, lines 8-11), wherein the particles determine a visible color of the pixel when present in the image volume (Paragraph 0003, lines 1-6 and Paragraph 0009, lines 1-14), and wherein the particles do not contribute to the visible color of the pixel when present in the reservoir volume (Paragraph 0046, lines 13-23),

select electrodes for generating in the reservoir volume a select electric field for separating the particles in different sub-volumes in the reservoir volume (Paragraph 0038, lines 1-8, Paragraph 0039, lines 18, Paragraph 0045, lines 1-9 and 12 and 13 of Fig. 3), and

at least one fill electrode for generating a fill electric field to move the particles from the sub-volumes into the image volume (Paragraph 0037, lines 1-5, Paragraph 0040, lines 1-10 and 14 of Fig. 3).

The cited primary reference does not explicitly disclose or teach the outer perimeter of the pixel is non-uniform. However, change in form of any element of prior patent must result in more than useful natural phenomenon that man has accumulated through common knowledge; even though use of new device greatly improves field and provides great utility, and commercial success is enjoyed because of long-felt need, these features cannot sustain patentability where involved is only extended application of obvious attributes from prior art. *Span-Deck Inc. v. Fab-Con, Inc.* (CA 8, 1982) 215 USPQ 835.

Regarding **claim 2**, De Boer discloses, an electrophoretic display as claimed in claim 1, wherein the at least one fill electrode is positioned to obtain the fill electric field directed for simultaneously moving the particles from the sub-volumes into the image volume (Paragraph 0009, lines 1-14 and Paragraph 0036, lines 2-11).

Regarding **claim 3**, De Boer discloses, an electrophoretic display as claimed in claim 1, wherein the fill electrodes comprise sub fill electrodes associated with the different sub-volumes for generating the fill electric field to comprise sub fill electric fields in the different sub-volumes (Paragraph 0002, lines 1-4).

Regarding **claim 4**, De Boer discloses, an electrophoretic display as claimed in claim 3, wherein the select electric field extends in a first direction (12, 25 of Fig. 6) and the sub fill electric fields in a second direction different from the first direction (13 of Fig. 6).

Regarding **claim 6**, DeBoer discloses, an electrophoretic display as claimed in claim 4, wherein the pixel comprises a further fill electrode arranged in the image volume in the second direction further away from the reservoir volume than the sub fill electrodes for attracting the particles leaving the sub-volumes further into the image volume (14 of Fig. 6).

Regarding **claim 7**, DeBoer discloses, an electrophoretic display as claimed in claim 6, wherein the further fill electrode is positioned in the second direction at a border of the image volume at a maximal distance from the reservoir volume (14 of Fig. 6).

Regarding **claim 12**, DeBoer discloses, an electrophoretic display as claimed in claim 1, wherein the image volume is box shaped, the select electrodes being arranged for generating the select electric field in a first direction substantially parallel with a border plane of the image volume (12, 25 of Fig. 6), and the fill electrodes being arranged for generating the fill electric field in a second direction substantially perpendicular to the first direction (13, 14 of Fig. 6).

Regarding **claim 13**, De Boer discloses, an electrophoretic display as claimed in claim 1, further comprising reset means for removing the particles from the image volume to store the particles in a store volume in the reservoir volume (Paragraph 0012, lines 1-8 and Paragraph 0037, lines 1-5).

Regarding **claim 14**, De Boer discloses, an electrophoretic display as claimed in claim 13, wherein the reset means comprise one of the select electrodes for attracting the particles in the image volume towards the store volume adjacent to the one of the select electrodes (Paragraph 0037, lines 1-5).

Regarding **claim 15**, De Boer discloses, an electrophoretic display as claimed in claim 1, wherein the mobility of the particles has a predetermined ratio (Paragraph 0036, lines 8-11), and

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wherein a movement path of the particles in the reservoir volume has a length to enable the particles to be separated in the sub-volumes which are substantially non-overlapping (Paragraph 0038, lines 1-8 and Paragraph 0039, lines 1-18).

Regarding **claim 16**, De Boer discloses, an electrophoretic display as claimed in claim 15, wherein the particles comprise a first, second and third type of particles all being charged in the same polarity (Paragraph 0035, lines 8-10), and having different mobilities (Paragraph 0036, lines 8-11).

Regarding **claim 18**, De Boer discloses, an electrophoretic display as claimed in claim 1, wherein the pixel comprises a reset electrode to attract the particles during a reset phase wherein the particles have to be moved into a store volume in the reservoir volume (Paragraph 0012, lines 1-8 and Paragraph 0037, lines 1-5).

Regarding **claim 19**, De Boer discloses, an electrophoretic display as claimed in claim 18, wherein the reset electrode is associated with the center of the image volume (Paragraph 0012, lines 1-8, Paragraph 0037, lines 1-5 and 14 of Fig. 3), and wherein the electrophoretic display further comprises a processor (inherent) for successively supplying a voltage to the reset electrode to attract the particles towards the center of the image volume and a voltage to one of the select electrodes being associated with the store volume to attract the particles to move into the store volume (Paragraph 0012, lines 1-8 and Paragraph 0037, lines 1-5).

Regarding **claim 20**, De Boer discloses, a method of driving an electrophoretic display with a pixel (Paragraph 0032, lines 1-7 and Paragraph 0034, lines 1-14), the electrophoretic display (Paragraph 0001, lines 1-5) comprising:

a reservoir volume (Paragraph 0035, lines 7, 12-15 and 18 of Fig. 3) and an image volume (Paragraph 0035, lines 4-6 and 16 of Fig. 3),

different types of particles having different colors and different electrophoretic mobilities (Paragraph 0011, lines 1-5, Paragraph 0014, lines 1-5 and Paragraph 0036, lines 8-11), wherein the particles determine a visible color of the pixel when present in the image volume (Paragraph 0003, lines 1-6 and Paragraph 0009, lines 1-14), and wherein the particles do not contribute to the visible color of the pixel when present in the reservoir volume (Paragraph 0046, lines 13-23), the method comprising:

generating in the reservoir volume a select electric field for separating the different types of particles in different sub-volumes in the reservoir volume (Paragraph 0038, lines 1-8, Paragraph 0039, lines 18, Paragraph 0045, lines 1-9 and 12 and 13 of Fig. 3), and

generating a fill electric field to move the different types of particles from the sub-volumes into the image volume (Paragraph 0037, lines 1-5, Paragraph 0040, lines 1-10 and 14 of Fig. 3).

The cited primary reference does not explicitly disclose or teach the outer perimeter of the pixel is non-uniform. However, change in form of any element of prior patent must result in more than useful natural phenomenon that man has accumulated through common knowledge; even though use of new device greatly improves field and provides great utility, and commercial success is enjoyed because of long-felt need, these features cannot sustain patentability where involved is only extended application of obvious attributes from prior art. *Span-Deck Inc. v. Fab-Con, Inc.* (CA 8, 1982) 215 USPQ 835.

Regarding **claim 21**, although the cited primary reference does not explicitly disclose or teach a portion of the perimeter bulges outward, however, change in form of any element of prior patent must result in more than useful natural phenomenon that man has accumulated through common knowledge; even though use of new device greatly improves field and provides great utility, and commercial success is enjoyed because of long-felt need, these features cannot sustain patentability where involved is only extended application of obvious attributes from prior art. *Span-Deck Inc. v. Fab-Con, Inc.* (CA 8, 1982) 215 USPQ 835.

Response to Arguments

3. Applicant's arguments filed 09/06/2007 have been fully considered but they are not persuasive.

4. In response to applicant's arguments that DeBoer does not disclose or suggest, a display in which "the outer perimeter of the pixel is non-uniform", Examiner points out that the change in form of any element of prior patent must result in more than useful natural phenomenon that man has accumulated through common knowledge; even though use of new device greatly improves field and provides great utility, and commercial success is enjoyed because of long-felt need, these features cannot sustain patentability where involved is only extended application of obvious attributes from prior art. *Span-Deck Inc. v. Fab-Con, Inc.* (CA 8, 1982) 215 USPQ 835.

Allowable Subject Matter

5. Claim 8 is allowed.

6. Claims 5, 10-11, and 17 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

7. The following is an examiner's statement of reasons for allowance: none of the prior art either alone or in combination disclose or teach of the claimed combination of limitations to warrant a rejection under 35 USC 102 or 103. Specifically, in reference to independent claim 8, none of the prior art either alone or in combination disclose or teach of the claimed electrophoretic display specifically including, as the distinguishing feature(s) in combination with the other limitations the claimed "further fill electrode is positioned in the second direction within the image volume but at less than the maximal distance from the reservoir volume."

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

8. The following is a statement of reasons for the indication of allowable subject matter: none of the prior art either alone or in combination disclose or teach of the claimed combination of limitations to warrant a rejection under 35 USC 102 or 103. Specifically, in reference to dependent claim 5, none of the prior art either alone or in combination disclose or teach of the claimed electrophoretic display specifically including, as the distinguishing feature(s) in combination with the other limitations the claimed "the reservoir volume comprises shielding electrodes for substantially shielding in the first direction the sub fill electric fields of the different sub-volumes from each other."

9. Specifically, in reference to dependent claims 10-11, none of the prior art either alone or in combination disclose or teach of the claimed electrophoretic display specifically including, as the distinguishing feature(s) in combination with the other limitations the claimed "a further

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reservoir volume, further select electrodes for generating in the further reservoir volume a further select electric field for separating the particles in further different sub-volumes in the further reservoir volumes, and further fill electrodes for generating a further fill electric field to simultaneously or time sequentially move the different types of particles from the further sub-volumes into the image volume.”

10. Specifically, in reference to dependent claims 17, none of the prior art either alone or in combination disclose or teach of the claimed electrophoretic display specifically including, as the distinguishing feature(s) in combination with the other limitations the claimed “particles comprise a first and a second type of particles both being charged in the same polarity and having different mobilities and a third type of particles being charged oppositely.”

Conclusion

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to DaWayne A. Pinkney whose telephone number is (571) 270-1305. The examiner can normally be reached on Monday-Thurs. 8 a.m.- 4:30 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ricky Mack can be reached on (571) 272-2333. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

DaWayne A. Pinkney

DAP

10/15/2007

Scott J. Sugarman

Scott J. Sugarman
Primary Examiner